

# RTD Digital Controllers

## 4200A Series



- ✓ **High-Accuracy to 0.1% of Span**
- ✓ **Single and Dual Setpoint Models**
- ✓ **1.0° and 0.1° Models**
- ✓ **Adjustable Proportion Band**
- ✓ **Bright LED Display**

The OMEGA® 4200A Series is an ideal controller for RTD applications. This quality-built linearized instrument is available in both 1.0° and 0.1° resolution models. Higher accuracies, accuracies 5 to 10 times greater than the typical 1% meter indicating controller, are achieved through a unique linearizing technique.

### Specifications\*

#### RTD Input

**Type:** 100  $\Omega$  platinum;  
alpha = 0.00385 (DIN curve)

**Configuration:** 3 wires

**External Lead Wire Resistance Effect:**  
0.1% span up to 10  $\Omega$  per lead wire leg

**Sensor Break Protection:**  
Built-in, upscale on open sensor

#### Calibration Accuracy:

**1.0° Resolution Model:**

$\pm 0.1\%$  of span  $\pm 1$  digit

**0.1° Resolution Model:**

$\pm 0.2\%$  of span  $\pm 1$  digit

**Stability:** 0.1% for 30 to 130°F,  
0.1%, 10% to 15% line voltage

**Common Mode Rejection:** Maximum error  $\pm 1^\circ\text{C}$  with 240 V, 60 Hz applied as common mode signal between sensor input and chassis ground

**Series Mode Rejection:** Maximum error  $\pm 1^\circ\text{C}$  with series mode signal of 100 mV peak-to-peak @ 60 Hz

#### Control Output

##### 1st Setpoint

(Adjustable Time Proportional):

**Relay (Standard Model):** SPDT relay  
7 A resistive @ 120 Vac, 5 A resistive at 240 Vac

**Option "T" (Triac):** Solid state plug-in triac rated 1 A holding and 10 A in-rush

**Option "F" (Current Proportional):**  
4 to 20 mAdc into 1000  $\Omega$  maximum

**Option "DC" (DC Pulse):** 20 Vdc

\* Specifications and configurations subject to change as advances in technology allow.

#### 2nd Setpoint:

**Relay (On/Off Only):** SPDT,  
rated 3 A at 120 Vac

#### Adjustments

**Proportional Band (Gain):** 0 to 3% of span, or on/off; selectable

**Manual Reset (Offset):** Adjustable

**Cycle Time:** Automatically adjusts with load requirement to give least wear with minimum ripple (10 s minimum)

#### Display and Indications

**Temperature:** Filtered LED, 3 or  $3\frac{1}{2}$  digits, 2 readings per second update; readability is 1.0° or 0.1° ( $^\circ\text{F}$  or  $^\circ\text{C}$ ), depending on model

**Setpoint:** By spring loaded switch, first or second setpoint is displayed in place of temperature; setpoint adjusted by 25 turn potentiometer; 1.0° or 0.1° setability

**Outputs:** LED indication for both first and second setpoints; LED are "on" when output drive signal present; "on/off" indication on relay and triac model; proportional intensity for option "F"

#### Temperature Overrange:

Red LED indication

#### Setpoint

**Resolution:** 1.0° or 0.1° ( $^\circ\text{F}$  or  $^\circ\text{C}$ ), depending on model

**Repeatability:**  $\pm 0.1\%$  to  $\pm 0.2\%$  of span

**Adjustment:** By 25 turn potentiometer; see "setpoint" under "display and indication" section.

**Power:** 120/240 Vac (10%, -15%, 50/60 Hz); power consumption less than 5 W



4201APF1.

PR-10-2-100-1/4-12-E  
general-purpose  
RTD probe sold  
separately.

#### Environmental and Physical

**Operating Temperature:** -1 to 54°C  
(30 to 130°F)

**Weight:** 1 kg (2 lb)

**¼ DIN Case:** Metal; plug-in with screw terminal on rear; adjustable brackets for panel mounting; panel cutout is 92 x 92 mm (3.622 x 3.622")



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

| Model Number         | Sensor Type                                          | Range                                  | Resolution | Accuracy $\pm 1$ Digit | No. of Setpoints |
|----------------------|------------------------------------------------------|----------------------------------------|------------|------------------------|------------------|
| 4201APF1<br>4201APC1 | 100 $\Omega$<br>Platinum<br>RTD                      | 0 to 999°F<br>0 to 600°C               | 1°F<br>1°C | $\pm 0.1\%$<br>of Span | Single           |
| 4202APF1<br>4202APC1 |                                                      | 0 to 999°F<br>0 to 600°C               | 1°F<br>1°C |                        | Dual             |
| 4201APF2<br>4201APC2 | $\alpha = 0.00385$<br>$\Omega/\Omega/^\circ\text{C}$ | -199.9 to 199.9°F<br>-199.9 to 199.9°C | 1°F<br>1°C | $\pm 0.2\%$<br>of Span | Single           |
| 4202APF2<br>4202APC2 |                                                      | -199.9 to 199.9°F<br>-199.9 to 199.9°C | 1°F<br>1°C |                        | Dual             |

#### Output Options (No Additional Cost)

| Order Suffix | Option Type (First Output Only) |
|--------------|---------------------------------|
| -T           | Triac                           |
| -F           | 4 to 20 mA                      |
| -DC          | DC pulse                        |

#### Accessory

| Model No.   | Description                                            |
|-------------|--------------------------------------------------------|
| CNQUENCHARC | Noise suppression RC snubber (2 leads), 110 to 230 Vac |

Comes complete with operator's manual.

**Ordering Examples:** 4202APF1, RTD digital controller.

OCW-3, OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5 years.